Why India's Mars mission is about more than power and prestige

Sreeram Chaulia *is a professor and dean at the Jindal School of International Affairs in Sonipat, India. His forthcoming book is 'Crunch Time: Narendra Modi's National Security Crises'.*

@sreeramchaulia

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Space travel has historically been closely tied to competition for political prestige and influence in international relations, but the Nov. 5 launch of a Mars orbiter spacecraft by India has proved there is much more to it than that.

This handout photograph released by the Indian Space Research Organisation (ISRO) on November 6, 2013, shows the PSLV-C25 rocket carrying the Mars Orbiter Spacecraft blasting off from the launch pad at Sriharikota on November 5, 2013. (AFP Photo) © AFP

The fact that India's first inter-planetary satellite was built by its own homegrown scientists in barely 15 months, at a record-low cost of $73 million, has become a matter of intense pride, and part of Indians' collective psyche.

It was a can-do, Sputnik-like feeling that defied the usual lament that defines average Indians who feel let down by daily governance failures and infrastructure bottlenecks of a dysfunctional governance system. That same system delivered a psychological ticket into the wider solar system for Indian people who crave grand achievements and global recognition for their scientific human capital.

The widespread joy in India at the launch of the country's Mars orbiter, Mangalyaan, should not be mistaken for vanity or escapism, however. Patriotic Indians are acutely aware of the rising profile of their country in global economics and geopolitics, alongside other emerging powers belonging to BRICS and similar groups. Every milestone in advanced rocket science, literally a rarefied and sophisticated field that few nations can master, is a shot in the arm for national self-confidence, showing that India is headed for global leadership. When the chips are down, or if there is a national calamity, memories of the Mars orbiter blazing a trail in the sky will sustain the faith that the future belongs to India.

Perception of competition with China

Many analysts argue that India is engaged in a space race specifically with China, and that the former's Mars orbiter was spurred on by the failure of China's Yinghuo-1 mission to Mars in November 2011.

The Indian Space Research Organization's chief scientist, K. Radhakrishnan, rejects such comparisons, however, saying: "*We are in competition with ourselves, in the areas we have charted for ourselves.*" For the scientific community, which is directly involved in high stakes projects such as the Mars orbiter, it is obvious that they set goals internally and are determined to achieve them. However, the belief that India is trying to steal a march over China is widespread.

China's state-owned media have also echoed this perception, by reacting with jealousy or wariness to India's Mars mission. The Global Times, published in Beijing, tried to reassure nationalistic Chinese readers that in space technology, their country "*has already been in advance of India*" and that China "*has no choice*" but to invest more in its own space exploratory abilities "*in front of an India that is striving to catch up with China.*"

Yet, unlike in the Cold War era, when the USSR and the US engaged in a spectacular tit-for-tat space race while remaining economically and politically estranged from each other, China and India today have a booming trade relationship and are not engaged in any outright ideological confrontation. If there is a "new Cold War" rivalry now, it is more between a whole group of powers led by Russia and the US.

There are elements of a Cold War mindset when China and India square off in strategic competition, but it remains embedded within the liberal framework of economic globalization and cooperation. The Chinese Foreign Ministry's call for "*joint efforts*" in space exploration after India's Mars orbiter launch underlines the complexity of this key bilateral relationship in Asia.

India is mindful that the strides it's making in space science can also be a medium for enhancing international cooperation. For instance, its Moon mission in 2008 won the International Cooperation Award from the International Lunar Exploration Working Group for carrying a payload of as many as 20 countries.

As India's satellite launch capacity expands, it can also offer friendly countries a platform for joint space exploration and help to mitigate predictions of galactic war. Through

technology, India can assume international leadership in cutting-edge dimensions and issues.

Race to be first in Asia

Missions to Mars are treacherous, however. Scientists at the Indian Space Research Organization point out that 30 out of a total of 51 Mars missions, from various countries, have ended in failure.

Bets are currently being placed on whether India's Mangalyaan (Mars Craft) will succeed in reaching Mars' orbit and detecting possible signs of life there in the form of methane gas.

The satellite is projected to reach its destination, 400 million kilometers away, by September 2014. Asia's two largest economic powers, Japan and China, launched their own Mars missions in 2003 and 2011, respectively, but neither of them reached Mars' orbit due to technical problems. Regardless of the current euphoria in the Indian media surrounding the launch, the scientific verdict on Mangalyaan will only come later. A sobering reminder comes from India's first lunar mission, Chandrayaan, which was designed to explore the moon for two years, but was declared lost after 312 days due to technical snags.

India is only the sixth power to embark on a mission to Mars. If it succeeds, India would be the first in Asia to do so, and only the fourth in the world after the Soviet Union, the US and the European Union.

Military angle

There are obviously military applications to India's space program, and India's longstanding National Satellite System, now in its third decade, has long been closely linked to its Integrated Missile Development Program, which built India's intermediate-range ballistic missiles. Today, India can boast of an intercontinental ballistic missile (ICBM) named Agni V with a strike range of 5,000 kilometers. This is due in part to the cooperation between the civilian scientific community and the defense industry.

Since the weaponization of space is now in full throttle, with the Chinese competing hard against Russia and the US, one benefit for India of projects such as the Mars orbiter mission is that it demonstrates the country's long-range military potential. It is tacitly acknowledged that the civilian space program brings strategic benefits to the country, as military thinkers say space will be the arbiter of future wars. The potential dual use of space technology is why the Chinese media has

reacted to India's Mars orbiter by reminding the Chinese people of the need to "*construct our comprehensive strategic power*."

Brainpower versus naysayers

As can be expected in a developing country with a free media, in the run-up to the Mars orbiter launch Indian opinion makers also considered the opportunity costs of space missions. Even though the costs of Mangalyaan are revolutionarily low by global standards and a feather in the cap for India's famed 'frugal innovation' industry, some in India complained about "*wasteful expenditure*" on nationalistic ego trips, when money could have been better spent on economic development schemes and alleviating poverty.

But the "guns versus butter" argument, which assumes that there has to be a tradeoff between state spending on military and the basic needs of citizens, is negated by the concrete benefits that India's satellite system has brought to the lives of ordinary people. From meteorological predictions that have saved thousands of lives from natural disasters, to broadcasting and telecommunications, India's National Satellite System has greatly helped human development in the country. If India remains poor and plagued by economic imbalances and inequalities, blaming greedy space scientists is way off the mark.

Returning to the national psyche, why has the Mars orbiter launch struck such a chord among all sectors and classes in Indian society? It's because India has always viewed its intellectual and mental faculties as extraordinary, and rocket science is revered as a key frontier of the human mind. Children in India learn in school textbooks about the ancient astronomer Aryabhata (AD 476–550) and his prescient works about the solar system and models in which the earth turns on its own axis. Especially in southern India, which produces the vast majority of the astrophysicists who lead the country's space research, the tradition of excelling in mathematics and physics is deeply ingrained in the culture.

To most Indians, their support for the Mangalyaan mission is not only about winning the space race for international prestige and influence, but also about reaffirming the core love in Indian society for pure and applied science, which is considered the summit of intellectual achievement and the testing ground for individual brilliance. The Mars orbiter speaks to the innate curiosity and rational scientific temper that Indians aspire to. In short, it's India's alter ego in space.